

## Identifying and Managing the Risks to Delta Levees

Delta levees and islands are at risk of failure from earthquakes, floods, subsidence, seepage and other threats. The Levee Program is taking steps to identify the risks to Delta levees and present a suite of options to manage this risk.

Over the past 25 years, the existing Delta levee program has reduced the flood and seepage risk by improving Delta levees. Research and demonstration projects are being conducted to quantify the effects of subsidence and determine how to reduce its threat to Delta levees.

Over the past year, a seismic risk assessment was made by a group of experts in the fields of seismology and geotechnical engineering. The results of this investigation found that a "significant seismic risk is present, however, improved preparedness can reduce the potential damage."

In an effort to further quantify the risks to levee dependent systems, CALFED will augment this group based on stakeholder recommendations, and charge them with the following tasks:

1. Design and perform a risk assessment. Identify contributors to levee risk and quantify the risk to levee dependent systems.
2. Provide recommendations for seismic upgrades to critical Delta levees and other measures to reduce levee failures. Include an evaluation of the reduction in levee vulnerability and cost estimates, (\$/mile), for various recommendations.
3. Review the Subsidence Subteam's report and comment on the concept of a zone of influence and the influence of inner island subsidence on levee integrity.
4. Review the Levee Program's CMARP scope, particularly the CMARP recommendations for subsidence, emergency response, and seismic risk assessment. Comment on the proposed scopes and develop cost estimates for completing the monitoring, assessment and research.

Once the risk to Delta levees and the systems dependent on them is quantified and the consequences evaluated, CALFED will implement an appropriate risk management strategy.

Several risk management options have been developed for inclusion in the CALFED Preferred Program Alternative. The available risk management options include but aren't limited to:

- Improving emergency response capabilities
- Developing storage south of the Delta
- Reducing the fragility of the levees
- Improving through-Delta conveyance
- Releasing more water stored north of the Delta
- Restoration of tidal wetlands
- Controlling and reversing island subsidence
- Curtailing Delta diversions
- Continued monitoring and analysis of total risk
- Constructing an isolated facility

The final Risk Management Plan may include a combination of these options and others identified as a result of the risk assessment.